

APPENDIX D
SITE-SPECIFIC HEALTH AND SAFETY PLAN (HASP)



Environmental Investigation & Remediation

HEALTH AND SAFETY PLAN

TIME-CRITICAL DRUM REMOVAL
KOKOMO DUMP SITE

1130 South Dixon Road
Kokomo, Indiana 46901

Site Spill Identification Number: C564

Administrative Settlement Agreement and Order on Consent for Removal Action
Docket Number V-W-13 • C-018

CENTER TOWNSHIP
HOWARD COUNTY, INDIANA

Prepared By:

SESCO Group
1426 W. 29th Street
Indianapolis, IN 46208
Telephone (317) 347-9590
Facsimile (317) 347-9591

SESCO Project #4108
September 4, 2013

TABLE OF CONTENTS

1.0	HEALTH AND SAFETY PLAN	1
1.1	HASP Purpose	1
1.2	Organization/Responsibilities	1
1.2.1	SESCO Project Manager.....	1
1.2.2	SESCO Senior Project Manager (SPM).....	2
1.2.3	SESCO Site Health & Safety Officer (SSO)	2
1.2.4	SESCO Field Personnel	3
1.2.5	SESCO Subcontractors and Respondents Contractors	3
1.3	Management of Changes/Modifications to the HASP	4
1.3.1	Management of Changes to the HASP.....	4
1.3.2	Modifications to the HASP	4
2.0	SITE DESCRIPTION AND HISTORY	5
2.1	Site Location.....	5
2.2	Landfill Operations	5
3.0	SCOPE OF WORK	6
3.1	Project Description	6
3.1.1	Boundary Survey.....	6
3.1.2	Phase I ESA	6
3.1.3	Brush Removal.....	6
3.1.4	Geophysical Survey	7
3.1.5	Drum Removal	7
3.1.6	Test Pit Excavation	7
3.1.7	Surface Soil Sampling.....	8
4.0	CHEMICAL HAZARD ASSESSMENT AND CONTROL	9
4.1	Chemical Contaminants of Concern	9
4.1.1	Volatile Organic Compounds (VOCs).....	9
4.1.2	Semi-Volatile Organic Compounds (SVOCs)	9
4.1.3	Metals	10
4.1.4	Pesticides.....	10
4.1.5	Polychlorinated Biphenyls (PCBs).....	10
4.1.6	Dioxin.....	10
4.2	Chemical Exposure and Control.....	11
4.2.1	Chemical Exposure Potential	11
4.2.2	Chemical Hazard Control	11
5.0	PHYSICAL HAZARDS AND CONTROL	12
5.1	Slip, Trip and Fall Hazards.....	12
5.1.1	On-Site Debris	12
5.1.2	Good Housekeeping.....	12
5.2	Site Clearing Hazards	12
5.2.1	Use of Chain Saws.....	12
5.2.2	Use of Gasoline-Powered Weed Trimmers	13
5.2.3	Stump Removal.....	14
5.3	Utility Hazards	14
5.3.1	Underground Utility Hazards	14
5.3.2	Overhead Utility Hazards.....	14
5.4	Working Around Heavy Equipment	14
5.5	Excavation Hazards	15

5.6	Drum Handling/Sampling/Storage.....	16
5.6.1	Drum Opening and Sampling Procedures	17
5.6.2	Drum Storage/Consolidation.....	17
5.7	Noise.....	18
5.8	Thermal Stress.....	19
5.8.1	Heat Stress	19
5.8.2	Cold Stress	21
5.9	Biological Hazards.....	22
5.9.1	Poisonous Plants	22
5.9.2	Ticks	22
5.9.3	Mosquito-Bourne Illnesses	23
5.9.4	Bees.....	24
5.9.5	Rabid Animals.....	24
5.9.6	Snakes	25
5.10	Inclement Weather	26
6.0	AIR MONITORING	28
6.1	Direct Reading Instrumentation	28
6.1.1	Rae Systems MiniRae 3000 PID Equipped With a 10.6 eV Lamp.....	28
6.1.2	Flame Ionization Detector (FID)	28
6.1.3	Draeger-Tubes®.....	28
6.1.4	Combination Oxygen/Combustible Gas Meter.....	28
6.1.5	Dust Monitor	28
6.2	Personal Air Sampling.....	29
6.3	Calibration and Recordkeeping.....	29
7.0	PERSONAL PROTECTIVE EQUIPMENT	30
7.1	Levels of Protection	30
7.1.1	Level A.....	30
7.1.2	Level B	31
7.1.3	Level C	32
7.1.4	Level D	32
7.2	Mandatory PPE.....	33
7.3	Levels of Protection Assigned to Tasks.....	33
7.3.1	Boundary Survey & Phase I ESA Site Reconnaissance.....	33
7.3.2	Brush Removal.....	33
7.3.3	Geophysical Survey	34
7.3.4	Buried Drum Removal and Sampling & Test Pit Excavation.....	34
7.3.5	Surface Soil Sampling.....	34
7.4	Respiratory Protection	34
8.0	SITE CONTROL/DECONTAMINATION.....	36
8.1	Site Access/Egress	36
8.2	Designation of Zones	36
8.2.1	Exclusion Zone.....	36
8.2.2	Contamination Reduction Zone	36
8.2.3	Support Zone	37
8.3	General Site Safety Practices.....	37
8.3.1	Site Communications	38
8.4	Decontamination	38
8.4.1	Personal Decontamination.....	38
8.4.2	Large Equipment Decontamination.....	38
8.4.3	Sampling Equipment Decontamination	39
9.0	MEDICAL MONITORING AND TRAINING REQUIREMENTS.....	40
9.1	Medical Monitoring.....	40

9.2	Health and Safety Training.....	40
9.2.1	HAZWOPER	40
9.2.2	Pre-Entry Briefing	40
9.2.4	Visitor Requirements	41
10.0	EMERGENCY CONTINGENCY PLAN	42
10.1	Employee Training	42
10.2	Alarm Systems/Emergency Signals	42
10.3	Escape Routes and Procedures	43
10.4	Rescue and Medical Duty Assignments	43
10.5	Designation of Responsible Parties	43
10.6	Employee Accounting Method	44
10.7	Accident Reporting and Investigation.....	44
10.8	Spill Response	44
10.8.1	Release of Material from Drums/Containers/Pails.....	44

FIGURES

Figure 1	Site Location Map
Figure 2	Site Map
Figure 3	USFWS National Wetlands Inventory Map

TABLES

Table 1	Emergency Contact Information
---------	-------------------------------

APPENDICES

Appendix A	Employee Acknowledgement of Site-Specific Health & Safety Plan
Appendix B	Site Health & Safety Plan Amendment Form
Appendix C	Pre-Entry Health & Safety Briefing Attendance Form
Appendix D	Accident Reporting Form

1.0 HEALTH AND SAFETY PLAN

1.1 *HASP Purpose*

This site-specific Health and Safety Plan (HASP) establishes the health and safety procedures required to minimize potential risk to personnel while performing field activities defined within the Work Plan at the Kokomo Dump Site (the Site) located in Center Township, Howard County, Indiana. The Work Plan activities are being conducted on behalf of the City of Kokomo, Indiana (Respondent).

This HASP has been written to comply with the requirements of OSHA's Hazardous Waste Operations and Emergency Response Standard (29 CFR 1910.120). All activities covered by this HASP will be conducted in complete compliance with this HASP and with all applicable federal, state, and local health and safety regulations.

The provisions of this plan apply to SESCO personnel, SESCO's subcontractors, Respondents' contractors, and/or other Site visitors who may potentially be exposed to safety and/or health hazards related to Work Plan activities described in **Sections 3.0 and 4.0** of the Work Plan. This HASP will be distributed to each SESCO employee, subcontractor employee, or any other personnel involved with the proposed work plan activities at the Site. Each employee must sign a copy of the Employee Acknowledgement of Site-Specific Health and Safety Plan form in **Appendix A**. Personnel covered by this HASP who cannot or will not comply will be excluded from Site activities.

This HASP only pertains to the tasks that are outlined in the Work Plan. A task-specific HASP or addendum to this HASP will be developed at a later date for any other subsequent investigative/remedial activities at the Site.

1.2 *Organization/Responsibilities*

SESCO is performing the Work Plan activities on behalf of the Respondent. The implementation of health and safety at this project location will be the shared responsibility of the SESCO Project Manager (PM), the SESCO Senior Project Manager (SPM), and SESCO field personnel, together with SESCO subcontractors and Respondents' contractors implementing the Work Plan and associated drum removal actions. The PM, SPM, and field personnel report to the Chief Operating Officer (COO), who will provide overall direction of the project and will be informed of project milestones.

1.2.1 SESCO Project Manager

SESCO's PM, Brad Adams, is the individual who has the primary responsibility for ensuring that this project-specific safety program is effectively implemented for the duration of the project. In addition, the PM is also responsible for the daily project planning, including coordination of subcontractors, maintaining the project schedule, and working with the SPM to amend the Work Plan as new activities arise. Some of the PM's specific responsibilities include:

- Writing, approving and amending the HASP;
- Advising the SPM and COO on matters relating to health and safety for this program;
- Recommending appropriate personal protective equipment (PPE) and respiratory equipment to protect personnel from potential Site hazards;

- Conducting accident investigations when necessary;
- Maintaining regular contact with the SPM and COO to evaluate site conditions and new information which might require modifications to the HASP.
- Assuring that all personnel to whom this HASP applies, including SESCO subcontractors, have received a copy of it;
- Providing adequate authority and resources to the on-Site personnel to allow for the successful implementation of all necessary safety procedures;
- Supporting the decisions made by the SPM and COO;
- Coordinating the activities of all contractors, on behalf of the Respondent, and ensuring that they are aware of the pertinent health and safety requirements for this project.

Modifications to this HASP, which may result in less stringent precautions, cannot be undertaken by the PM or the SPM without the approval of the COO.

1.2.2 SESCO Senior Project Manager (SPM)

SESCO's SPM, Bill Pickard, is the individual responsible for over-all project planning, including coordination of subcontractors, maintaining the project schedule, and amending the Work Plan as new activities arise. Specific duties of the SPM include:

- Reviewing and approving the HASP;
- Advising the PM and COO on matters relating to health and safety for this program;
- Assist with recommending appropriate PPE and respiratory equipment to protect personnel from potential Site hazards;
- Assist with conducting accident investigations, if necessary; and,
- Maintaining regular contact with the PM and COO to evaluate site conditions and new information which might require modifications to the HASP.

1.2.3 SESCO Site Health & Safety Officer (SSO)

All SESCO field personnel are responsible for implementing the safety requirements specified in this HASP, with either a Staff Project Manager or Field Technician serving as the daily SSO. If the field personnel are not on-Site, the PM will be designated as the SSO. SESCO will maintain a SSO during all on-Site activities covered by this HASP. The SSO is responsible for enforcing the requirements of this HASP once work begins. The SSO has the authority to immediately correct all situations where noncompliance with this HASP is noted and to immediately stop work in cases where an immediate danger is perceived. Some of the SSO's specific responsibilities include:

- Assuring that all personnel to whom this HASP applies, including subcontractors, have submitted a completed copy of the HASP Receipt and Acceptance Form;
- Assuring that all personnel to whom this HASP applies have attended a pre-entry briefing and any subsequent safety meetings that are conducted during the implementation of the Work Plan;
- Maintaining a high level of health and safety consciousness among employees implementing the time critical actions;
- Procuring and distributing the PPE, respiratory equipment, and safety supplies needed for this

- project for SESCO employees;
- Verifying that all PPE and health and safety equipment used by SESCO is in good working order;
- Verifying that contractors are prepared with the PPE, respiratory protection, and safety equipment required for this program;
- Notifying SESCO's PM, SPM and/or COO of all noncompliance situations and stopping work in the event that an immediate danger situation is perceived;
- Monitoring and controlling the safety performance of all SESCO subcontractor personnel within the established restricted areas to ensure that required safety and health procedures are being followed;
- Conducting accident/incident investigations and preparing accident/incident investigation reports;
- Conducting the pre-entry briefing and daily "tailgate" safety meetings, in conjunction with the contractors; and,
- Initiating emergency response procedures in conjunction with the contractors.

1.2.4 SESCO Field Personnel

SESCO's field personnel have direct supervision over all on-Site subcontractors and personnel for the Work Plan activities. The field personnel will coordinate daily Site-specific work efforts and will ensure that all activities are conducted in strict compliance with the Site-specific HASP.

- All SESCO field personnel covered by this HASP are responsible for following the health and safety procedures specified herein and for performing their work in a safe and responsible manner. Some of the specific responsibilities of the field personnel are as follows:
- Reading the HASP in its entirety prior to the start of on-site work;
- Submitting a completed HASP Acceptance Form to the SSO prior to the start of work;
- Attending the required pre-entry briefing prior to beginning on-site work and any subsequent "tailgate" safety meetings that are conducted during the implementation of the program;
- Bringing forth any questions or concerns regarding the content of the HASP to the PM, SPM or the SSO prior to the start of work;
- Reporting all accidents, injuries and illnesses, regardless of their severity, to the SSO; and,
- Complying with the requirements of this HASP and the requests of the SSO.

1.2.5 SESCO Subcontractors and Respondents Contractors

Additionally, the subcontractors hired by SESCO and Respondents' contractors are responsible for:

- Reading the HASP in its entirety prior to the start of on-Site work;
- Attending and participating in the required pre-entry briefing prior to beginning on-Site work and any subsequent safety meetings that are conducted during the implementation of the program;
- Ensuring, via daily inspections, that their equipment is in good working order;
- Operating their equipment in a safe manner;
- Appointing an on-Site safety coordinator to interface with the SSO;

- Providing SESCO with copies of material safety data sheets (MSDS) for all hazardous materials brought on-Site; and,
- Providing all the required PPE, respiratory equipment and safety supplies to their employees.

1.3 *Management of Changes/Modifications to the HASP*

1.3.1 Management of Changes to the HASP

The procedures in this HASP have been developed based on SESCO's understanding of the potential environmental issues at the Site and the proposed Work Plan activities. Every effort has been made to address the chemical hazards that may be encountered during the implementation of the proposed actions. Similarly, this document also discusses the physical hazards associated with the proposed activities. However, unanticipated Site-specific conditions or situations may occur during the implementation of this project. Also, SESCO and/or their subcontractors and Respondents' contractors may elect to perform certain tasks in a manner that is different from what was originally intended, due to a change in field conditions. As such, this HASP must be considered a working document that is subject to change to meet the needs of this dynamic project.

1.3.2 Modifications to the HASP

Should significant additional information become available regarding potential on-Site hazards, it may be necessary to modify this HASP. All proposed modifications to this HASP must be reviewed and approved by the PM, SPM and COO and a Site Health and Safety Plan Amendment form must be completed before such modifications are implemented. A copy of the Site Health and Safety Plan Amendment Form is included in **Appendix B**.

Any significant modifications must be incorporated into the written document as addenda and the HASP must be reissued. The PM will ensure that all personnel covered by this HASP receive copies of all issued addenda. Sign-off forms will accompany each addendum and must be signed by all personnel covered by the addendum. Sign-off forms will be submitted to the PM. The HASP addenda should be distributed during the daily safety meeting so that they can be reviewed and discussed. Attendance forms will be collected during the meeting

2.0 SITE DESCRIPTION AND HISTORY

2.1 *Site Location*

The Site, located at 1130 S. Dixon Road, Kokomo, Indiana, 46901, is comprised of approximately 4.5 acres. The Site is bordered by a towing and truck repair company to the north, an abandoned railroad and Haynes International to the east, three (3) commercial office/warehouse buildings to the south, and Dixon Road to the west. One(1) small office building is located on the west side of the property near the entrance to the property from Dixon Road. A concrete pad housing a dumpster and portable toilet is located next to the building. The vast majority of the Site is dedicated to storage of landscape waste and mulch generated on-Site. A Site location map is provided as **Figure 1** and the Site features are depicted on **Figure 2**.

Wildcat Creek, the main surface drainage feature in the area, is located approximately 225 feet north of the Site. Kitty Creek is located approximately 80 feet west of the Site and is channelized through a culvert running north-south parallel to Dixon Road. The location of the discovered drums is adjacent to a short open discharge area between two (2) storm sewer culverts; storm water outlets from beneath the Haynes International property and then inlets a few feet further to the west and continues via the culvert beneath the Site towards Kitty Creek to the west, as shown on the topographic map included as **Figure 1**. Topography at the Site is relatively flat with a ridge created by a railroad track bounding the Site to the east, with the ground surface sloping generally to the north and west towards Wildcat Creek.

No wetlands are mapped adjacent or in the immediate vicinity of the Site, according to the online U.S. Fish and Wildlife Service National Wetlands Inventory Mapper. A copy of the map is included as **Figure 3**. A quarry is located west of Dixon Road and is likely influencing deep groundwater flow in the vicinity.

The contents and the horizontal and vertical extent of the landfill is unknown, but could be characterized by the deposition of soil, ash, glass, sludge, drums and miscellaneous metal construction debris. The thickness of the landfill is unknown, but soil borings that were advanced in August 2011 indicated that approximately 10 to 15 feet of fill material was present in the soil borings. Vegetation on the landfill surface consists of a mixture of young and mature hardwood trees along the east side of the Site, adjacent to the railroad right-of-way. A six (6)-foot high fence surrounds the west, north and south sides of the Site, with a locked gate on the west side along Dixon Road. Due to the heavy vegetation along the railroad right-of-way to the east, access to the Site from off-Site to the east is difficult.

2.2 *Landfill Operations*

According to historic local newspaper articles from the Kokomo Tribune, the Kokomo Dump Site was utilized as a former municipal waste open dump in the 1960s, but had been shut down in January 1970, when a landfill opened nearby. It was reported that an estimated 30,000 cubic yards of accumulated garbage were present in early 1970 when the dump ceased operations. The newspaper articles indicated that the dump site was seven (7) acres in size. It is presumed that a portion of the property to the south of the Site was part of the dump site. The Site has been utilized as a yard waste composting facility since around 1980 and is open seasonally from April through November. Residents of the Kokomo area can bring compostable yard waste to the facility for disposal and the waste is processed through chippers and is turned into mulch and re-usable landscaping products.

3.0 SCOPE OF WORK

3.1 *Project Description*

Activities planned as part of the Work Plan at the Site include the following:

- Boundary survey to establish the legal property boundaries of the Site;
- Phase I Environmental Site Assessment (ESA) to establish historical uses of the Site;
- Removal of brush and yard waste adjacent to the railroad right-of-way. This will allow future access to the buried drums;
- A geophysical survey will be conducted to identify buried drums, ferrous and non-ferrous metals, and other anomalies that are not visible at the surface using a highly sensitive electronic metal detector;
- Removal and disposal of two (2) buried drums and their contents, which were discovered by Indiana Department of Environmental Management (IDEM) personnel in April 2011. If present, waste liquids and/or solids associated with buried drums will be sampled for disposal characterization; and,
- The collection of surface soil samples across the Site.

3.1.1 **Boundary Survey**

It was apparent to SESOCO during a Site visit on December 24, 2012, that a complete Site boundary survey would be needed to establish the legal boundaries of the Site. This task will be conducted at the onset of the project to ensure that investigation and/or removal actions are not encroaching on off-Site properties. If investigation activities are expected to encroach onto neighboring properties, access to those neighboring properties will be requested. A professional survey will be conducted by Miller Surveying, Inc. Metal pins will be placed at the corners of the property to identify the Site boundary.

3.1.2 **Phase I ESA**

Prior to conducting any additional investigation or sampling activities on-Site, complete and thorough historical Site research will be conducted. This will allow a better understanding of historic Site operations and determine where source areas are potentially located. The Site research will include a Phase I ESA by Morgan-Clark Associates, LLC in accordance with ASTM E1527-13 and U.S. EPA Standards and Practices for All Appropriate Inquiries rule. Attempts will be made to contact former employees and personnel familiar with the former City dump to better determine the nature of the historic operations.

3.1.3 **Brush Removal**

Removal of the brush and other yard waste along the east side of the Site is necessary to expose the drums and debris that were noted by the IDEM. Removal of the brush and debris is also necessary to provide proper access to a geophysical survey contractor. It is estimated that approximately one (1) acre of land surface on the Site contains brush that will require removal, prior to the removal of the two (2) drums noted by the IDEM and U.S. EPA. It is important to note that some of the brush from the Site is likely situated within the railroad right-of-way, and access to the railroad property has been established. Since the majority of the yard waste that must be moved was placed there by City of

Kokomo personnel as part of normal daily operations, the City of Kokomo will provide the labor and equipment to remove it. However, SESCO will provide a field technician to oversee the removal activities in the event that additional drums or other potential sources of contamination are uncovered, so that they can be properly addressed.

3.1.4 Geophysical Survey

Following the removal and disposal of the brush, a geophysical survey will be conducted on the entire 4.5 acre Site by Prism GeoImaging of Fishers, IN (Prism). The purpose of the geophysical survey is to identify buried drums, ferrous and non-ferrous metals, and other anomalies using a highly sensitive electronic metal detector. Following the geophysical survey, Prism will submit a summary report, complete with color maps, showing the areas of interest and/or buried items. SESCO will summarize the findings from the Prism report and will submit recommendations for additional investigation work.

3.1.5 Drum Removal

During the drum removal phase, the test pits containing buried drums will be reopened using a hydraulic excavator with a non-sparking, toothless bucket. Once a drum is exposed, an excavator equipped with a barrel grapple or sling will remove the drum from the test pit. Any drum recovered whole or partial drums with material contained within them will be placed directly into a new 55-gallon drum or overpack drum. Empty drums and drum remnants will be stockpiled close to the excavation area and subsequently transported to the staging area and placed in a roll-off dumpster. Loose waste materials (e.g., rags, waxy residues, or materials that exhibit high photo ionization detector or flame ionization detector (PID/FID) readings) associated with (i.e., within or adjacent to) buried drums will be placed into new 55-gallon drums and will be transported to the Drum Storage Area for characterization sampling and off-site disposal.

In general, the drums that are encountered throughout the course of this project will be treated as unknowns. Some information relative to the types of wastes and characterization of waste materials present within the landfill is provided in the *OTIE Site Assessment Report* dated February 17, 2012. Specifically, organic compounds (such as methyl ethyl ketone) present the greatest risk of exposure to on-Site workers. Throughout the execution of field operations, any drums encountered should be assumed to present a greater risk until proven otherwise.

3.1.6 Test Pit Excavation

Although not planned during this scope of work, test pits may be completed in the future, depending on the results of the geophysical survey. It is possible that test pits may be completed at the same time as the drum removal. Test pits would be excavated using a hydraulic excavator equipped with a non-sparking, toothless bucket. Some Site clearing may be required prior to the initiation of test pits. In order to carefully expose potential buried drums, excavation operations will be conducted in 6-inch lifts. The depths of the test pits are anticipated not to exceed 15 feet. Proposed test pit locations will be developed in a future scope of work, if necessary.

In test pits where buried drums are encountered, excavation will cease, the test pit will be backfilled and the location will be marked with a wooden stake and high visibility paint or surveyor's tape.

SESCO and the excavation contractor will return to those locations where buried drums were identified during the drum removal phase of the project.

Depending on the results of the test pit excavation, a field decision may be made to combine test pitting and drum removal activities. If such a decision is made, activities will be conducted under the personal protective equipment levels described for drum sampling activities in **Section 7.3**.

3.1.7 Surface Soil Sampling

Surface soil samples will be collected from various locations across the Site during Work Plan activities. The surface soil sampling may be completed prior to or following the drum removal, depending on the logistics of Site access and scheduling of drum removal activities. As the surface soil sampling activities will be conducted separately from any test pit or drum removal activities, dermal contact with contaminated soil is expected to be the primary exposure route during these activities. Proposed surface soil sample locations will be determined following the geophysical survey.

4.0 CHEMICAL HAZARD ASSESSMENT AND CONTROL

4.1 *Chemical Contaminants of Concern*

The types of waste disposed of at the landfill are unknown, but previous investigation work indicated that the contents of the drums contained elevated levels of arsenic, chromium, lead, mercury, and zinc. Due to the potential unknown sources within the landfill, the list of primary contaminants of concern (COCs) associated with these types of wastes include the following:

- VOCs
- SVOCs
- Metals
- Pesticides
- PCBs

Below is a summary of the health hazards associated with overexposure to these COCs.

4.1.1 Volatile Organic Compounds (VOCs)

Previous investigation work has identified the presence of a number of VOCs in subsurface soil samples collected at the Site from soil borings. Some of the specific VOC contaminants detected include benzene, chlorobenzene, cis-1,2-dichloroethene, 1,4-dichlorobenzene, ethylbenzene, isopropylbenzene, 4-isopropyltoluene, methylene chloride, naphthalene, n-butylbenzene, n-propylbenzene, sec-butylbenzene, tert-butylbenzene, tetrachloroethene (PCE), toluene, trans-1,2-dichloroethene, trichloroethene (TCE), 1,3,5-trimethylbenzene, and xylene.

Exposure to the vapors of these compounds above their respective OSHA permissible exposure limits (PELs) may produce irritation of the mucous membranes of the upper respiratory tract, nose and mouth. Overexposure may also result in the depression of the central nervous system. Symptoms of such exposure include drowsiness, headache, fatigue, and “drunken-like” behaviors. Chronic and prolonged overexposure to the vapors of benzene may cause damage to the blood-forming organs and is known to cause leukemia in humans.

4.1.2 Semi-Volatile Organic Compounds (SVOCs)

The SVOCs identified in subsurface soil samples include compounds that are a family of multiple-ring aromatics commonly found in fossil fuels and formed from the incomplete combustion of organic materials. Some of the SVOCs that have been detected at the Site include benzo[a]anthracene, benzo[g,h,i]perylene, bis(2-ethylhexyl) phthalate, chrysene, fluoranthene, 2-methylnaphthalene, naphthalene, phenanthrene, and pyrene. Repeated contact with SVOC compounds may cause photosensitization of the skin, producing skin burns after subsequent exposure to ultra-violet light. Certain SVOC compounds as a group are considered potential human carcinogens or carginogenic polycyclic aromatic hydrocarbons (cPAHs).

4.1.3 Metals

Numerous metals were detected in subsurface soil samples, including arsenic, barium, cadmium, chromium, copper, lead, mercury, selenium, silver, and zinc. In general, the inhalation of metal dusts is irritating to the upper respiratory tract and nasal mucous membranes. Most metal dusts cause dermatitis and/or eye irritation. Early exposure symptoms may include nausea, vomiting, abdominal pain, muscular ache, headache, and dizziness.

4.1.4 Pesticides

Chlorinated hydrocarbon pesticides, such as DDT, chlordane, lindane, and dieldrin, may be present in wastes in the landfill; however, an assessment of pesticides has not been completed. These compounds are highly stable and valued for their residual action against insects. They are also stored in the body fat of mammals and are eliminated very slowly. These pesticides affect the central nervous system. Symptoms of poisoning include tremors and convulsions. Chronic effects associated with organochlorine pesticide poisoning include liver damage. Many of the chlorinated hydrocarbon pesticides are directly absorbed through the skin to cause systemic effects.

4.1.5 Polychlorinated Biphenyls (PCBs)

PCBs were previously detected in subsurface soil samples. PCBs are a series of technical mixtures consisting of many isomers and compounds that vary from mobile oily liquids to white crystalline solids to hard non-crystalline resins. PCB-containing fluids were commonly used as the coolant in heavy duty transformers and capacitors. Since pure PCBs are highly viscous, they were typically mixed with an organic solvent to allow the transformer fluid to flow. Depending upon the age of the transformer, the PCB concentration in transformer fluids can range from a few parts per million (ppm) to many hundreds of ppm.

PCBs are generally considered to be of moderate to low toxicity. The higher the chlorine content of the PCBs, the greater the toxicity is likely to be. Exposure to PCBs can cause liver damage at high concentrations. Prolonged exposure to large doses of PCBs has been shown to cause cancer in laboratory animals. However, no strong evidence indicates that PCBs are human carcinogens. Dermal contact with liquid PCBs may produce skin irritation or a rash, often referred to as "chloracne." Eye contact with PCB fluids is likely to produce eye irritation.

4.1.6 Dioxin

Due to the historic use of an incinerator on the Site and the presence of PCBs in subsurface soil, the U.S. EPA has expressed concern regarding the potential presence of dioxins. Dioxins and dioxin-like compounds are by-products of various industrial processes and are commonly regarded as highly toxic compounds that are persistent organic pollutants. Dioxins are considered highly toxic and able to cause reproductive and developmental problems, damage to the immune system, interfere with hormones and also cause cancer.

4.2 Chemical Exposure and Control

4.2.1 Chemical Exposure Potential

The potential for exposure to the contaminants of concern during the planned Work Plan activities is considered to be low to moderate, with the higher potential for exposure occurring during actual drum removal, handling, and sampling activities. This is due to the confined nature of a drum and the higher concentrations of contaminants typically found in drums, as compared to soils, sediments, groundwater or surface water. Based on previous data, it is likely that the primary contaminants of concern during the drum removal will be metals and VOCs in the drum contents or within the soil in contact with the drums. However, exposure to metal-containing dusts is expected to be minimal due to the relatively limited area of disturbance. Exposure to VOCs is more likely to be a concern during drum handling/sampling operations. Exposure to VOCs is expected to be highest if drums containing liquid wastes are encountered. During the sampling of the drums, there is also the potential for direct dermal contact/splash hazard with drummed materials.

4.2.2 Chemical Hazard Control

The chemical hazards associated with the planned Work Plan activities can be controlled in several ways, including:

- SESCO will perform air monitoring (**Section 6.0**) in the worker's breathing zone to determine exposure to VOC vapors during drum removal/handling and sampling activities, as well as during the potential excavation of test pits. If exposures exceed the action levels, respiratory protection, as discussed in **Section 7.4**, will be donned.
- Although significant amounts of dust are not anticipated to be generated during drum removal activities, applying a fine mist of water over the surface soils during removal activities as necessary will minimize the potential for dust generation.
- To avoid direct dermal contact with contaminated media, protective clothing, as described in **Section 7.1**, will be required when handling drums, decontaminating sampling equipment or machinery, and during surface soil sampling activities.
- Although highly unlikely, exposure to all of the COCs may occur via ingestion.
- The decontamination procedures described in **Section 8.4** address personal hygiene issues that will limit the potential for contaminant ingestion by hand-to-mouth transfer.

5.0 PHYSICAL HAZARDS AND CONTROL

There are numerous physical hazards associated with existing site conditions as well as the nature of the work being conducted at the Site. It should be noted that, for purposes of implementing the proposed Work Plan activities, no confined space entry will be necessary or performed. If confined spaces are identified on-Site and it is determined that such spaces must be entered, the SSO and/or PM will be contacted to ensure that this HASP is properly revised to address the hazards of confined space entry.

5.1 *Slip, Trip and Fall Hazards*

5.1.1 On-Site Debris

Two (2) drums of unknown contents were identified during previous Site investigations; however, no drums were removed from the surface of the former landfill during previous investigations. Buried and semi-buried materials are still present at the former landfill and could potentially pose a slip, trip and fall hazard to Site workers. Additionally, the Site is heavily vegetated on the east side and the terrain is uneven. Further, field operations will include Site clearing activities, which may include stump grinding or removal (see **Section 5.3**). Fallen trees and remaining stumps will also present a tripping hazard to Site workers. To the extent possible, team members should walk on established pathways within the Site to access their work areas versus cutting through disturbed areas.

5.1.2 Good Housekeeping

Maintaining a work environment that is free from accumulated debris is the key to preventing slip, trip and fall hazards. Essential elements of good housekeeping include:

- Orderly placement of materials, tools and equipment;
- Placing trash receptacles at appropriate locations for the disposal of miscellaneous rubbish;
- Prompt removal and secure storage of items that are not needed to perform the immediate task at hand; and,
- Awareness on the part of all employees to walk around, not over or on, equipment that may have been stored in the work area.

5.2 *Site Clearing Hazards*

Extensive Site clearing is expected to be necessary along the eastern property boundary, adjacent to the railroad right-of-way. The Site clearing is expected to be completed by the Respondent's personnel, since some of the debris situated along the eastern portion of the Site was placed there during the recent operations of the Site. Clearing operations will likely consist of tree and brush removal. Tree removal will be conducted using chain saws and/or a hydraulic excavator. Once on the ground, the trees will be cut into manageable lengths for removal from the work area and subsequent chipping for reuse.

5.2.1 Use of Chain Saws

Chain saws will be used to assist in the removal of trees from the proposed work areas. The following

safety procedures and all of the provisions of 29 CFR 1910.266 will be implemented when operating a chain saw:

- Chain saws must be inspected daily to assure that all handles and guards are in place and tight, that all controls function properly and that the muffler is operative and equipped with a spark arrestor.
- All chain saw controls must function properly, including having a chain saw equipped with a safety throttle which shuts off power after pressure on the throttle is released.
- The cutting chain must be properly adjusted, such that the saw chain will not continue to be driven after the throttle is released.
- Chain brakes and all other manufacturers' safety features must remain operational.
- Chain saws without operational safety devices, in need of repair or parts, or otherwise not safe for use shall immediately be tagged out and marked "out of service."
- The chain saw will only be started on the ground or when otherwise firmly supported.
- Brush which might interfere with clear footing will be cleared before starting to cut.
- The saw will be shut off when carried for a distance greater than from tree to tree, or when the ground surface is slippery or heavy with underbrush. The saw must be at idle speed when carried short distances.
- The chain saw will not be used to cut directly overhead or at a distance at which the operator no longer has a safe grip on the saw. Two (2) hands will always be used to operate the saw.
- Safety glasses with permanently attached sideshields will be worn underneath a polycarbonate faceshield, which will attach to standard hard hats. The brush shield is designed to protect the head and face from debris created by using a chain saw.
- Employees will wear Kevlar gloves and Kevlar chain saw chaps to protect hands and legs from accidental contact with the saw. The leg protection shall cover the full length of the thigh to the top of the boot on each leg to protect against contact with a moving chain saw.
- Ear muffs or ear plugs with a minimum Noise Reduction Rating (NRR) of 24 decibels (dB) must also be worn.

5.2.2 Use of Gasoline-Powered Weed Trimmers

Gasoline-powered weed trimmers (aka "weed whackers") may be used to clear areas of succulent vegetation such as grass, light brush, briars and tree seedlings. The gasoline-powered weed trimmer cuts grass and weeds but is unstable for use on larger growth. The trimmer can clear a path of approximately 12-14 inches wide and uses an expendable nylon string spinning at a velocity to cut down vegetation in its path. The cutting head is protected by a debris shield, which prevents the debris from flying back into the user. Some small amount of debris is expected. When using a gasoline-powered weed trimmer, users should follow these safety procedures:

- The correct tool should be selected for the type and size of vegetation present across the landfill.
- Users will wear leather gloves, long pants, eye protection, and hearing protection with a NRR of at least 24 dB.
- Trimmers are meant to be held with both hands to maintain control at all times.

- At the end of the day, the trimmer should be inspected for damage and necessary repairs completed.

5.2.3 Stump Removal

Stump removal operations will be conducted using a backhoe or hydraulic excavator (where required) and removed from the work area.

5.3 *Utility Hazards*

5.3.1 Underground Utility Hazards

Indiana law requires that a utility clearance be performed at least two (2) business days prior to initiation of any subsurface work. Both SESO and their subcontractors will contact the Indiana 811 call before you dig contact center (811 or 1-800-382-5544) to request a mark-out of natural gas, electric, communication lines, water, and sewer lines in the proposed work locations. Work will not begin until the required utility clearances have been performed. Public utility clearance organizations typically do not mark-out any portion of an underground utility line that is considered to be a private line or private property (such as the water line from the meter pit into a structure). During the Site visit conducted on December 24, 2012, it appeared that utilities serving the Site are located on the west side near Dixon Road.

As such, SESO and their subcontractors must exercise due diligence and try to identify the location of any private utilities on the property being investigated. This requirement can be fulfilled in several ways, including:

- Visually reviewing proposed excavation areas with the property owner or knowledgeable Site representative;
- Performing a metal detector survey to locate utilities;
- Hiring a private line-locating firm to determine the location of utility lines that are present at the property;
- Identifying a no-dig zone; or
- Hand digging in those proposed locations if insufficient data is available to accurately determine the location of the utility lines.

5.3.2 Overhead Utility Hazards

All Site personnel should be aware of the potential for overhead power lines to be present in the work area. Any vehicle or mechanical equipment capable of having parts of its structure elevated (backhoe boom, etc.) near energized overhead lines shall be operated so that a clearance of at least ten (10) feet is maintained. If the voltage is higher than 50kV, the clearance shall be increased four (4) inches for every 10kV over that voltage.

5.4 *Working Around Heavy Equipment*

Heavy machinery will be used on-Site during excavation work and buried drum removal. The use of such equipment poses a potential hazard to the support crew working around the equipment. Use of

heavy equipment at the Site requires all employees working in the exclusion zone to wear, at a minimum, ANSI-approved hard hats, steel-toed safety shoes/boots, safety glasses, and hearing protection.

Operators will inspect the equipment daily before use to ensure safe operating conditions, to determine that the brakes and operating systems are in proper working condition, and to verify that all required safety devices are in place and functional (e.g., reverse gear alarms are working properly). When working around heavy equipment, employees should:

- Make sure that the operator is aware of your presence/activities;
- Stay in the operator's line of sight; don't work in his/her blind spot;
- Approach areas where equipment is operating from a direction visible to the operator;
- Be aware of the swing radius of equipment that rotates, such as excavators; and,
- Develop a series of hand signals to facilitate communication with the operator.

5.5 *Excavation Hazards*

Excavation/potential test pit depths during this project are expected to extend to a maximum of 15 feet. The summary of cave-in prevention actions listed below is brief and is meant to remind employees of the significant hazards associated with entering an unshored excavation/trench. It is the sole responsibility of the excavation contractor to ensure compliance with OSHA's Excavation Standard (29 CFR 1926.650) and to provide a person competent in identifying excavation hazards to the project. Test pits will be backfilled upon completion. Under no circumstances should SESCO or any of its subcontractors enter a test pit or excavated area.

Should additional buried drums be identified during any test pit activities, those areas will be backfilled and marked with a wooden stake and high visibility paint or marking tape. Once the excavation work is complete, those areas where buried drums were identified will be excavated and drum removal operations will begin. It is possible that drum removal operations will require larger areas to be excavated and it may become necessary to leave an excavation open. In the event that an excavation is left open for more than a day, the contractor will secure the excavation with a fence to further prevent personnel or trespassers from entering. SESCO will inspect open excavations on a daily basis.

Should it become necessary for personnel to enter an excavation (e.g., to aid in buried drum removal), proper excavation safety procedures will be followed. Excavation safety procedures to be followed include the following:

- A stairway, ladder, ramp or other similar means of egress must be located in excavations greater than four (4) feet in depth so as to require no more than 25 feet of lateral travel for employees in the trench excavation. More than one means of egress may be required.
- The excavation must be free of accumulated water before entry is allowed.
- No person shall enter an excavation greater than five (5) feet in depth unless one of the following conditions are met:
 - The walls of the excavation have been sloped back to an angle not steeper than one and one-half horizontal to one vertical (1.5H:1V) (i.e., 34 degrees from the

horizontal) as specified in 29 CFR 1926.652(b). Example – An excavation that was planned to be five (5) feet deep and three (3) feet wide at the base would have to be sloped back so that it was 18 feet wide at the top, or the walls of the excavation have been shored in accordance with the requirements specified in 29 CFR 1926.652(c), (d), and (e); or,

- The work in the excavation is to be performed within the confines of an approved shield system (e.g., trench box) that has been constructed and is used in accordance with the requirements of 29 CFR 1926.652(g).
- A stand-by employee must be present at all times when employees are in the excavation.
- All materials, including spoils, will be placed at least two (2) feet from the edge of the excavation to prevent the material from rolling into the excavation. All personnel should remain at least two (2) feet away from the edge of the excavation while personnel are in the excavation.

Aside from the inherent cave-in hazards associated with excavations, there is also the added hazard of exposure to COCs. Therefore, the atmosphere within the excavation should be characterized using a PID/FID and a combustible gas meter to evaluate the space. However, any personnel entering an excavation during drum removal activities must be wearing Level B PPE and respiratory protection, as this is the required level of PPE for drum handling. Air monitoring procedures and instrumentation are discussed in **Section 6.0** of this HASP. Selection, donning, and doffing procedures for PPE are discussed in **Section 7.0** of this HASP.

In order to carefully expose buried drums, all excavation operations will be conducted in six (6)-inch lifts. Once drums have been exposed, an excavator or backhoe equipped with a barrel grapple or sling will remove the drum from the excavation.

5.6 Drum Handling/Sampling/Storage

Upon uncovering buried drums, the following actions will be taken by the drum removal contractor:

- Drums which are uncovered intact and are empty, and/or drum remnants or carcasses that do not contain waste materials will be placed in a roll-off dumpster in the Drum Storage Area for off-Site recycling or destruction.
- Drum remnants or carcasses containing solid waste materials will be placed into a new 55-gallon drum or overpack, depending on their size, and will be transported to the Drum Storage Area for characterization sampling and off-Site disposal.
- Loose waste materials (e.g., rags, waxy residues, or materials which exhibit high PID/FID readings) associated with (within or adjacent to) buried drums will be placed into new 55-gallon drums and will be transported to the Drum Storage Area for characterization sampling and off-Site disposal.
- Whole drums that contain waste materials (solid, liquid, or a combination) will be placed into overpack containers and will be transported to the Drum Storage Area for opening, characterization sampling, and off-Site disposal.

The potential physical and chemical hazards associated with the drum removal, drum handling and drum sampling tasks could be significant; however, the two (2) drums that were previously identified on-Site appeared to contain solidified material. Aside from the potential for inhaling vapors and

being splashed with drum contents in the event of liquid contents, there are significant physical hazards associated with handling drums including:

- Being struck by drum parts (removable heads, rings, and bungs) thrown by pressurized release of drum contents;
- Being struck by falling drums;
- Contact with sharp metal parts (chimes, rings, etc);
- Strain and overexertion due to inappropriate lifting techniques; and,
- Being caught between drums when loading damaged drums into salvage or overpack drums and when manually moving drums next to one another.

The following safety precautions will be implemented during these efforts to reduce the potential for injury.

5.6.1 Drum Opening and Sampling Procedures

All drums to be characterized for off-Site disposal will be moved to the drum storage area and placed on the drum sampling and storage pad. Drum sampling operations will be monitored using a PID/FID and combustible gas detector. In the event that the lower explosive limit (LEL) reaches or exceeds 10%, drum sampling operations will be suspended. The following guidelines will be adhered to:

- Drums with removable heads (open tops) will have the tops removed. This operation should be conducted with caution, as rings that become disfigured can spring from the drums when they are released.
- Non-bulging, non-removable head drums with bungs will be opened slowly by removing the smaller of the bungs. Should a pressure release be detected, employees will step back and let the drum vent prior to completing the opening.
- Manual drum opening will be performed with a bung wrench that is made of non-sparking material, such as brass or a bronze-beryllium alloy.
- If the bung on a non-bulging drum cannot be removed, the drum will be moved into a segregated area and opened by means of a non-sparking drum punch.
- Bulging drums could have contained frozen materials, could have been pressurized at one time or another, or are/have been under pressure due to chemical reaction. Bulging drums present a unique hazard and as such, will be placed behind a blast shield and opened using a remote drum opener.

During drum sampling, all solid samples will be collected using a stainless steel trowel or dedicated disposable scoop/spatula. Liquid samples will be collected using a dedicated glass drum sample thief. When collecting samples, employees will not stand on or work from drums or containers and will not stand over or place hands and arms over a drum.

5.6.2 Drum Storage/Consolidation

Following drum field characterization/screening and sampling, each drum will be categorized into a waste stream for purposes of consolidating materials of similar composition and compatibility for

off-Site disposal, where possible. Based on previous drum characterization activities at the Site, potential waste streams include:

- Metal-impacted solid waste
- Metallic debris
- Soil containing pigments, dyes and/or paint sludges
- General solids with no VOC headspace readings

Once categorized, drums will be:

1. Removed from salvage/overpack drums and consolidated with like wastes in new 55-gallon drums; or,
2. Remain in the overpack drums, be numbered and placed on wooden pallets and positioned on the drum storage pad. The drums will be placed in rows no more than two (2) wide with the labels and identifying marks turned toward the aisle. Aisles will be wide enough to allow for uninterrupted egress and movement of drum handling equipment (i.e. skid steer loader).

Recovered wastes will be staged in a designated area for subsequent off-Site disposal. All disposable PPE will be containerized and disposed of off-Site in the same manner as all Investigation-Derived Wastes (IDW). If additional drums are discovered that require removal and disposal, a roll-off box will be placed on or near the drum/waste storage and sampling pad. The box will be used to bulk like wastes. Like wastes may consist of:

- Empty drums, carcasses, and remnants; and
- Non-hazardous solid wastes (i.e., wastes in drums characterized as being non-hazardous).

Wastes awaiting characterization results and off-Site disposal information will be covered at the end of each work day. All roll-off boxes will be equipped with roll type tarps for storage purposes. The drum/waste staging and sampling pad is shown in **Figure 2**.

5.7 Noise

The use of heavy equipment to implement the Work Plan activities may expose the field team to noise levels that exceed the OSHA Permissible Exposure Limit (PEL) of 85 dB for an 8-hour day. Exposure to noise can result in the following:

- Temporary hearing losses where normal hearing returns after a rest period;
- Interference with speech communication and the perception of auditory signals;
- Interference with the performance of complicated tasks; and,
- Permanent hearing loss due to repeated exposure resulting in nerve destruction in the hearing organ.

Since personal noise monitoring will not be conducted during the proposed activities, employees must follow this general rule of thumb: If the noise levels are such that you must shout at someone five (5) feet away from you, you need to be wearing hearing protection. Employees can wear either disposable earplugs or earmuffs, but all hearing protection must have a minimum NRR of 24 dB.

5.8 *Thermal Stress*

It is anticipated that site operations will begin in fall 2013 and continue into early winter. As such, the hazards of both heat and cold stress are presented in this HASP.

5.8.1 Heat Stress

5.8.1.1 Types of Heat Stress

Heat-related problems include heat rash, fainting, heat cramps, heat exhaustion, and heat stroke. Heat rash can occur when sweat is not allowed to evaporate, leaving the skin wet most of the time and making it subject to irritation. Fainting may occur when blood pools to lower parts of the body and, as a result, does not return to the heart to be pumped to the brain. Heat-related fainting often occurs during activities that require standing erect and immobile in the heat for long periods of time. Heat cramps are painful spasms of the muscles due to excessive salt loss associated with profuse sweating. Heat exhaustion results from the loss of large amounts of fluid and excessive loss of salt from profuse sweating. The skin will be clammy and moist and the affected individual may exhibit giddiness, nausea, and headache.

Heat stroke occurs when the body's temperature regulatory system has failed. The skin is hot, dry, red, and spotted. The affected person may be mentally confused and delirious. Convulsions could occur. **EARLY RECOGNITION AND TREATMENT OF HEAT STROKE ARE THE ONLY MEANS OF PREVENTING BRAIN DAMAGE OR DEATH.** A person exhibiting signs of heat stroke should be removed from the work area to a shaded area. The person should be soaked with water to promote evaporation. Fan the person's body to increase cooling.

Early symptoms of heat-related health problems include:

- Decline in task performance;
- Lack of coordination;
- Decline in alertness;
- Unsteady walk;
- Excessive fatigue;
- Reduced vigilance;
- Muscle cramps; and
- Dizziness.

Susceptibility to heat-stress increases due to:

- Lack of physical fitness;
- Lack of acclimation;
- Increased age;
- Dehydration;
- Obesity;
- Drug or alcohol use;

- Sunburn; and
- Infection.

People unaccustomed to heat are particularly susceptible to heat fatigue. First timers in PPE need to gradually adjust to the heat.

5.8.1.2 Effect of Personal Protective Equipment

Sweating normally cools the body as moisture is removed from the skin by evaporation. However, the wearing of certain PPE, particularly chemical protective coveralls (e.g., Tyvek®), reduces the body's ability to evaporate sweat and thereby regulate heat buildup. The body's efforts to maintain an acceptable temperature can therefore become significantly impaired by the wearing of PPE. To avoid heat stress, the following guidelines should be adhered to when working in hot environments:

- Establish work-rest cycles (short and frequent are more beneficial than long and seldom);
- Identify a shaded, cool rest area;
- Rotate personnel; alternate job functions;
- Water intake should be equal to the sweat produced. Most workers exposed to hot conditions drink less fluid than needed because of an insufficient thirst. **DO NOT DEPEND ON THIRST TO SIGNAL WHEN AND HOW MUCH TO DRINK.** For an 8-hour workday, 50 ounces of fluids should be consumed;
- Eat lightly salted foods or drink salted drinks such as Gatorade® to replace lost salt;
- Save most strenuous tasks for non-peak heat hours such as the early morning or at night;
- Avoid alcohol during prolonged periods of heat. Alcohol will cause additional dehydration; and,
- Avoid double shifts and/or overtime.

The implementation and enforcement of the above-mentioned measures will be the joint responsibility of the PM and SSO. Potable water and fruit juices should be made available each day for the field team.

5.8.1.3 Heat Stress Monitoring Techniques

Site personnel should regularly monitor their heart rate as an indicator of heat strain by the following method: Check radial pulse rates by using fore and middle fingers and applying light pressure to the pulse in the wrist for one minute at the beginning of each rest cycle. If the pulse rate exceeds 110 beats/minute, shorten the next work cycle by one-third and keep the rest period the same. If, after the next rest period, the pulse rate still exceeds 110 beats/minute, shorten the work cycle by one-third. The procedure is continued until the rate is maintained below 110 beats/minute.

5.8.2 Cold Stress

5.8.2.1 Types of Cold Stress

Cold injury is classified as either localized, as in frostbite, frostnip, or chilblain; or generalized, as in hypothermia. The main factors contributing to cold injury are exposure to humidity and high winds, contact with wetness and inadequate clothing.

The likelihood of developing frostbite occurs when the face or extremities are exposed to a cold wind in addition to cold temperatures. The freezing point of the skin is about 30°F. When fluids around the cells of the body tissue freeze, skin turns white. This freezing is due to exposure to extremely low temperatures. As wind velocity increases, heat loss is greater and frostbite will occur more rapidly.

5.8.2.2 Symptoms of Cold Stress

The first symptom of frostbite is usually an uncomfortable sensation of coldness, followed by numbness. There may be a tingling, stinging, or aching feeling in the affected area. The most vulnerable parts of the body are the nose, cheeks, ears, fingers and toes.

Symptoms of hypothermia, a condition of abnormally low body temperature, include uncontrollable shivering and sensations of cold. The heartbeat slows and may become irregular, the pulse weakens and the blood pressure changes. Pain in the extremities and severe shivering can be the first warning of dangerous exposure to cold. Maximum severe shivering develops when the body temperature has fallen to 95°F. Productive physical and mental work is limited when severe shivering occurs. Shivering is a serious sign of danger. Immediately remove any person who is shivering from the cold.

5.8.2.3 Methods to Prevent Cold Stress

When the ambient temperature, or a wind chill equivalent, falls to below 40°F (American Conference of Governmental Industrial Hygienists recommendation), Site personnel who must remain outdoors should wear insulated coveralls, insulated boot liners, hard hat helmet liners and insulated hand protection. Wool mittens are more efficient insulators than gloves. Keeping the head covered is very important, since 40% of body heat can be lost when the head is exposed. If it is not necessary to wear a hard hat, a wool knit cap provides the best head protection. A facemask may also be worn.

Persons should dress in several layers rather than one single heavy outer garment. The outer piece of clothing should ideally be wind and waterproof. Clothing made of thin cotton fabric or synthetic fabric, such as polypropylene, is ideal since it helps to evaporate sweat. Polypropylene is best at wicking away moisture while still retaining its insulating properties. Loosely fitting clothing also aids in sweat evaporation. Denim is not a good protective fabric, since it is loosely woven, which allows moisture to penetrate. Socks with a high wool content are best. If two (2) pairs of socks are worn, the inner sock should be smaller and made of cotton, polypropylene, or similar types of synthetic material that wick away moisture. If clothing becomes wet, it should be taken off immediately and a dry set of clothing put on.

If wind conditions become severe, it may become necessary to shield the work area temporarily. The SSO and the PM will determine if this type of action is necessary. Heated break trailers or a

designated area that is heated should be available if work is performed continuously in the cold at temperatures, or equivalent wind chill temperatures, of 20°F.

Dehydration occurs in the cold environment and may increase the susceptibility of the worker to cold injury due to significant change in blood flow to the extremities. Drink plenty of fluids, but limit the intake of caffeine.

5.9 Biological Hazards

The Work Plan will likely be implemented in the fall and into the first part of winter 2013. Depending on the timing of the project and the potential for future work in 2014, the hazards associated with poisonous plants and insects might become a concern due to the vegetative growth present at the Site. The Site provides animal habitat so there is a remote chance that wild animals, perhaps rabid, could be encountered.

5.9.1 Poisonous Plants

Persons working on the Site should be aware of the possible presence of poisonous plants and insects. Poison ivy is a climbing plant with leaves that consist of three glossy, greenish leaflets. Poison ivy has conspicuous red foliage in the fall. Small yellowish-white flowers appear in May through July at the lower leaf axils of the plant. White berries appear from August through November. Poison ivy is typically found east of the Rockies and is likely to be abundant at the Site.

Poison oak is similar to poison ivy but its leaves are oak-like in form. Poison oak occurs mainly in the south and southwest. Poison sumac typically occurs as a small tree or shrub and may be six (6) to 20 feet in height. The bark is smooth, dark and speckled with darker spots. Poison sumac is typically found in swampy areas east of the Mississippi. The leaves have seven (7) to 13 smooth-edged leaflets and drooping clusters of ivory-white berries appear in August and last through spring.

The leaves, roots, stems, and fruit of these poisonous plants contain urushiol. Contact with the irritating oil causes an intensely itching skin rash and characteristic, blister-like lesions. The oil can be transmitted on soot particles when burned and may be carried on the fur of animals, equipment, and apparel.

Proper identification of these plants is the key to preventing contact and subsequent dermatitis. Wear long sleeves and pants when working in wooded areas. In areas of known infestation, wear Tyvek® coveralls and gloves. Oils are easily transferred from one surface to another. If you come in contact with these poisonous plants, wash all exposed areas immediately with cool water to remove the oils. Some commercial products such as Tecnu® Poison Oak-n-Ivy Cleanser claim to further help with the removal of oils.

5.9.2 Ticks

Ticks are bloodsuckers, attaching themselves to warm-blooded vertebrates to feed. Deer ticks are associated with the transmission of the bacteria that causes Lyme disease. Female deer ticks are about one-quarter inch in length and are black and brick red in color. Males are smaller and all black. If a tick is not removed, or if the tick is allowed to remain for days feeding on human blood, a condition known as tick paralysis can develop. This is due to a neurotoxin, which the tick apparently injects

while engorging. This neurotoxin acts upon the spinal cord causing lack of coordination, weakness, and paralysis. The early stages of Lyme disease, which can develop within a week to a few weeks of the tick bite, are usually marked by one (1) or more of these signs and symptoms:

- Tiredness;
- Chills and fever;
- Headache;
- Muscle and/or joint pain;
- Swollen lymph glands; and
- Characteristic skin rash (i.e., bulls eye rash).

Tick season lasts from April through October, with the peak season being May through July. Risk may be reduced by taking these precautions:

- During outside activities, wear long sleeves and long pants tucked into socks. Wear a hat, and tie hair back.
- Use insecticides to repel or kill ticks. Repellents containing the compound DEET® can be used on exposed skin except for the face, but they do not kill ticks and are not 100% effective in discouraging ticks from biting. Products containing permethrin kill ticks, but they cannot be used on the skin - only on clothing. When using any of these chemicals, follow label directions carefully.
- After outdoor activities, perform a tick check. Check body areas where ticks are commonly found: behind the knees, between the fingers and toes, under the arms, in and behind the ears, and on the neck, hairline, and top of the head. Check places where clothing presses on the skin.
- Remove attached ticks promptly. Removing a tick before it has been attached for more than 24 hours greatly reduces the risk of infection. Use tweezers, and grab as closely to the skin as possible. Do not try to remove ticks by squeezing them, coating them with petroleum jelly, or burning them with a match.
- Report any of the above symptoms and all tick bites to the SSO for evaluation.

5.9.3 Mosquito-Borne Illnesses

Eastern equine encephalitis is a rare disease that is spread to horses and humans by infected mosquitoes. It is among the most serious of a group of mosquito-borne virus diseases that can affect the central nervous system and cause severe complications and even death. Although relatively small outbreaks of human disease have occurred in the United States, the frequency of this disease is increasing with most cases reported from the eastern seaboard states, the Gulf Coast, and some inland mid-western areas.

After infection, the virus invades the central nervous system, including the spinal cord and brain. Most people have no symptoms; others get only a mild flu-like illness with fever, headache, and sore throat. For people with infection of the central nervous system, a sudden fever and severe headache can be followed quickly by seizures and coma. About half of these patients die from the disease. Of those who survive, many suffer permanent brain damage and require lifetime institutional care.

Symptoms usually appear four (4) to ten (10) days after the bite of an infected mosquito. Confirming diagnosis is based on tests of blood or spinal fluid.

West Nile encephalitis is an infection of the brain caused by the West Nile virus, which is transmitted by infected mosquitoes. Following transmission from an infected mosquito, West Nile virus multiplies in the person's blood system and crosses the blood-brain barrier to reach the brain. The virus interferes with normal central nervous system functioning and causes inflammation of the brain tissue. However, most infections are mild. Symptoms include fever, headache, and body aches. More severe infections may be marked by headache, high fever, neck stiffness, stupor, disorientation, coma, tremors, convulsions, muscle weakness, paralysis, and rarely, death. Persons over the age of 50 have the highest risk of severe disease.

Prevention centers on public health action to control mosquitoes and on individual action to avoid mosquito bites. To avoid being bitten by the mosquitoes that cause the disease, use the following control measures:

- If possible, stay inside between dusk and dark. This is when mosquitoes are most active.
- When outside between dusk and dark, wear long pants and long-sleeved shirts.
- Spray exposed skin with an insect repellent, preferably containing DEET®.

5.9.4 Bees

Wasps (hornets and yellow-jackets) and bees (honeybees and bumblebees) are common insects that may pose a potential hazard to the field team if work is performed during spring, summer, or fall. Bees normally build their nests in the soil. However, they use other natural holes such as abandoned rodent nests or tree hollows. Wasps make a football-shaped, paper-like nest either below or above the ground. Yellow-jackets tend to build their nests in the ground but hornets tend to build their nests in trees and shrubbery. Bees are generally more mild-mannered than wasps and are less likely to sting. Bees can only sting once while wasps sting multiple times because their stinger is barbed. Wasps sting when they feel threatened. By remaining calm and not annoying wasps by swatting, you lessen the chance of being stung. When a wasp stings, it injects a venomous fluid under the skin. The venom causes a painful swelling that may last for several days. If the stinger is still present, carefully remove it with tweezers. Some people may develop an allergic reaction (i.e., anaphylactic shock) to a wasp or bee sting. If such a reaction develops, seek medical attention at once.

5.9.5 Rabid Animals

The Site provides animal habitat so there is a remote chance that wild animals, perhaps rabid, could be encountered. Rabies is a viral disease of the brain and spinal cord that affects warm-blooded animals, such as dogs, cats, horses, cattle, deer, raccoons, and skunks. Raccoons remain the most frequently reported rabid animal in the United States especially in the northeastern, mid-Atlantic, and southeastern states.

The rabies virus causes the affected animal to become very aggressive and fearless. Behaviors exhibited by rabid animals include:

- Daytime activity in animals normally active only at night.

- Aimless roaming during which the animal becomes very irritable, often biting at anything that moves.
- Excessive saliva around the mouth that looks like it is foaming around the mouth.
- Staggering, weakness, and paralysis.

Do not approach a rabid animal. Do not try to trap the animal yourself. Walk away quickly from the animal and go to a protected place where you can contact the local animal control department at the following numbers and times:

- Monday-Friday, 8am-4pm, Kokomo Humane Society, 765-452-6224
- Monday-Friday, 4pm-10pm, Kokomo Police Dept, 765-459-5101
- Saturday-Sunday, 8am-4pm, Kokomo Police Dept, 765-459-5101

5.9.6 Snakes

There are four (4) species of venomous snakes that are present in Indiana, including the Northern Copperhead, Western Cottonmouth, Timber Rattlesnake, and Eastern Massasauga. It is unknown which snake(s) inhabit the Kokomo area.

The Northern Copperhead favors rocky wooded hillsides, rocky fields, berry thickets, wooded wetlands, farmlands, and even old mulch piles amongst leaf litter, logs, and branches. They are often found in association with water. They are active from May through October. The copperhead is 24 to 36 inches long. It is red-brown in coloration, with darker hourglass bands. This snake is easily camouflaged in the leaf litter of the forest floor. Small, dark spots are frequently present between the crossbands and dark, rounded spots can be seen at the sides of its belly.

The Western Cottonmouth is one that many refer to by names such as the Water Moccasin, or a combination of variations: Cottonmouth Moccasin, Highland Water Moccasin, and North American Water Moccasin. The explanation for its name is the bright white lining of the mouth that it displays as a warning to predators and prey. Cottonmouth snakes forage by ambushing, actively searching for, and hunting their prey. It is common for cottonmouths to eat dead animals as a food source. They are often found in association with water. They are active from May through October. The cottonmouth is normally 36 to 48 inches long. It is characterized as having a broad, flat head with elongated pupils.

The Timber Rattlesnake ranges from 36 to 60 inches in length. In Indiana, the Timber Rattlesnake is found in rocky, wooded ledges, where they den in south-facing slopes. They are active from May through October. There are two (2) color variations of this snake in Indiana, the yellow variation and the black variation. The yellow variation is characterized with black or dark brown crossbands on a ground color of yellow or brown with the crossbands being V-shaped that break up into spots down its back. The black variation is characterized by a heavy stippling of black or very dark brown that hides the much lighter pigment.

The Eastern Massasauga ranges from 18 to 40 inches in length. In Indiana, the Eastern Massasauga is found in wooded areas or open fields in search of prey. They are active from May through October. The body is distinctly marked with a row of large black or dark brown hourglass-shaped markings along the back and three (3) rows of smaller dark spots on each side. The background coloration is

gray to brownish-gray. A dark bar with a lighter border extends from the eye to the rear of the jaw. Some adult snakes can be all black. This rattlesnake can also be identified by the nine (9) large scales on the crown of the head, similar to most non-venomous snakes.

The above-referenced Rattlesnakes and Copperheads belong to the family of pit vipers. The venom of these snakes affects the circulatory system. The bite of a pit viper is characterized by extreme pain, rapid swelling, one or more puncture wounds created by the fangs, and is marked by a general discoloration of the skin. Manifestations of envenomation include general weakness, rapid pulse, nausea and vomiting, shortness of breath, dimness of vision, and shock.

To reduce the chances of being bitten by a snake, the following procedures should be followed:

- Never bend down to the ground or sit on the ground before checking your surroundings for the presence of snakes.
- Never put your unprotected hand or foot into a closed space that you cannot check for the presence of hidden snakes.
- Wear boots or leggings to help protect from snake bites.

5.10 Inclement Weather

Work is expected to begin in the fall and proceed into early winter. It is therefore important to have a response plan in place that dictates what actions Site employees will take in the event of severe weather, specifically severe thunderstorms. When a severe thunderstorm is approaching, employees will only have a short amount of time to make important decisions. Employees do not have access to consistent and current news information via the television or radio when working in the field. To ensure the field team is alerted to the onset of severe weather, the project team will be issued a battery-operated National Oceanic and Atmospheric Administration (NOAA) weather radio. The radio will be equipped with an alarm that will automatically broadcast any pertinent information from NOAA's National Weather Service. Via the radio, the team will be aware of any severe thunderstorm and/or tornado watches or warnings that have been issued for their work area by the National Weather Service. It is important for field team members to understand the difference between a "watch" and a "warning." If a severe thunderstorm watch is issued for your work or travel area, it means that a severe thunderstorm is possible.

If a severe thunderstorm **warning** is issued, it means that a severe thunderstorm has actually been spotted or is strongly indicated on radar and it is time to seek safe shelter immediately. Weather broadcasts are typically issued for specific counties, not individual towns. The Site is located in Howard County. Additionally, employees should become familiar with the names of the counties through which they must travel when mobilizing/demobilizing from their assigned work location, in the event that a broadcast is issued for those counties.

If a severe thunderstorm watch is issued, employees must remain alert for approaching storms and review the procedures for seeking refuge in the event that a warning is issued. If a severe thunderstorm warning is issued, employees will take the following measures:

- If you hear thunder, you are close enough to a storm to be struck by lightning.
- Cease all work and seek shelter immediately, either within a sturdy building or car. Do not

take shelter in small sheds, under isolated trees or in convertible automobiles. Avoid trees as they are targets for lightning. If in a car, keep the windows up.

- If you are caught outside during a thunderstorm and no shelter is available, find a low spot away from trees, fences and poles. Squat low to the ground on the balls of your feet, place your hands on your knees with head between them. Make yourself the smallest target possible and minimize your contact with the ground.

6.0 AIR MONITORING

The primary COCs during the excavation activities and drum removal will be metal-laden dust from the disturbance of soil and overburden materials. Exposure to VOCs is more likely to be a concern during drum handling/sampling operations, with potential exposure being highest if drums containing liquid wastes are encountered.

6.1 Direct Reading Instrumentation

6.1.1 Rae Systems MiniRae 3000 PID Equipped With a 10.6 eV Lamp

A RaeSystems Mini-Rae 3000 PID with a 10.6 eV lamp will be used to monitor the breathing zone of personnel during excavation or drum removal, as well as the drum handling and sampling operations, where exposure to VOCs may be more of a concern.

6.1.2 Flame Ionization Detector (FID)

Due to the possible presence of VOCs with ionization potentials greater than 10.6 eV, an FID will also be used in conjunction with the PID. Use of a PID/FID combination instrument, such as a Foxboro TVA 1000 will also be considered.

6.1.3 Draeger-Tubes®

As discussed in **Section 4.0** of the Work Plan, during excavation or drum removal activities, if PID/FID readings exceed an action level of 5 ppm above background in the breathing zone (sustained 5 minute reading), then Draeger tubes will be used to evaluate the concentrations of specific VOCs. Draeger-Tube® systems, consisting of a sample pump and tube, measure VOC-specific concentrations using a prepared, disposable tube. Draeger tubes will be used for commonly encountered VOCs. Draeger® tubes are glass vials filled with a chemical reagent that reacts to a specific chemical or family of chemicals. A calibrated 100 ml sample of air is drawn through the tube with the Draeger Accuro® bellows pump. If the targeted chemical(s) is present, the reagent in the tube changes color and the length of the color change typically indicates the measured concentration.

6.1.4 Combination Oxygen/Combustible Gas Meter

SESCO will monitor drum removal and the drum storage and drum sampling areas for the presence of flammable and potentially explosive atmospheres using a combination oxygen/combustible gas indicator. If the meter detects a flammable atmosphere (greater than 10% of the lower explosive limit) in these areas, drum sampling will cease until the PM and SSO can confer on how to safely proceed with the drum removal/sampling operations.

6.1.5 Dust Monitor

In order to control dust, a light mist of water will be applied to the ground surface near the exposed drums. This will minimize the amount of dust generated during excavation or drum removal activities. Due to the short duration of the drum removal, no dust monitoring will be necessary.

6.2 *Personal Air Sampling*

Personal air sampling will not be conducted by SESCO during the activities covered by this HASP.

6.3 *Calibration and Recordkeeping*

Equipment used by SESCO will be calibrated in accordance with procedures described in more detail within **Section 8.1** of the QAPP. A log of PID/FID/CGI readings will be kept in the field notebook or on standard log forms, also described in the QAPP. Daily calibration information will also be recorded in the field notebook.

7.0 PERSONAL PROTECTIVE EQUIPMENT

7.1 *Levels of Protection*

Levels of protection to be utilized by on-Site personnel will be continually evaluated by the PM and/or SSO, with assistance from the SPM. The levels of protection may be downgraded or upgraded, as necessary, with approval by the SPM and COO. Any change in the level of protection must be documented.

The following section describes the different levels of protection (A through D). Each level is described in the following manner: the protection provided; when this particular level of protection should be used; recommended and optional equipment; and, any limiting criteria.

7.1.1 Level A

- a. Protection provided:
 - Level A provides the highest available level of respiratory, skin and eye protection.
- b. Should be used when the chemical substance has been identified and requires the highest level of protection for skin, eyes, and the respiratory system based on any of the following circumstances:
 - Measured (or potential for) high concentration of atmospheric vapors, gases or particulates;
 - Site operations and work functions involving a high potential for splash, immersion, or exposure to unexpected vapors, gases or particulates of materials that are harmful to skin or capable of being absorbed through intact skin;
 - Substances with a high degree of hazard to the skin are known or suspected to be present, and skin contact is possible;
 - Operations must be conducted in confined, poorly ventilated areas until such time as the absence of conditions requiring Level A protection is determined.
- c. Recommended equipment:
 - Pressure-demand, full facepiece Self-Contained Breathing Apparatus (SCBA) or pressure-demand supplied-air respirator with escape SCBA;
 - Fully-encapsulating, chemical-resistant suit (pressure-tested immediately before use);
 - Inner chemical-resistant suit;
 - Inner chemical-resistant gloves;
 - Chemical-resistant safety boots/shoes; and
 - Two-way radio communications.
- d. Optional equipment:
 - Cooling unit;
 - Coveralls;

- Long cotton underwear;
 - Hard hat; and
 - Disposable gloves and boot covers
- e. Limiting criteria:
- Fully-encapsulating suit material must be compatible with the COCs involved.

7.1.2 Level B

- a. Protection provided:
- The same level of respiratory protection, but less skin protection than Level A.
- b. Should be used when:
- The type and atmospheric concentration of substances have been identified and require a high level of respiratory protection, but less skin protection. This involves atmospheres with immediately dangerous to life and health (IDLH) concentrations of specific substances that do not represent a severe skin hazard, or that do not meet the criteria for use of air purifying respirators;
 - Atmospheres contain less than 19.5% oxygen; and
 - The presence of incompletely identified vapors or gases is indicated by direct-reading organic vapor detection instrument, but vapors and gases are not suspected of containing high levels of chemicals harmful to skin or capable of being absorbed through the intact skin.
- c. Recommended equipment:
- Pressure-demand, full facepiece SCBA or pressure-demand supplied-air respirator with escape SCBA;
 - Chemical-resistant clothing (coveralls and long-sleeved jacket; hooded, one- or two-piece chemical splash suit; disposable chemical-resistant one-piece suit);
 - Inner and outer chemical-resistant gloves;
 - Chemical-resistant safety boots/shoes;
 - Hard hat; and
 - Two-way radio communications.
- d. Optional equipment:
- Coveralls;
 - Disposable boot covers;
 - Face shield; and
 - Long cotton underwear.
- e. Limiting criteria:
- Use only when the vapors or gases present are not suspected of containing high concentrations of chemicals that are harmful to skin or capable of being absorbed through the intact skin.
 - Use only when it is highly unlikely that the work being done will generate either

high concentrations of vapors, gases or splashes of material that will affect the exposed skin.

7.1.3 Level C

- a. Protection provided:
 - Level C provides the same level of skin protection as Level B, but a lower level of respiratory protection.
- b. Should be used when:
 - The atmospheric contaminants, liquid splashes, or other direct contact will not adversely affect any exposed skin;
 - The types of air contaminants have been identified, concentrations measured, and a canister/cartridge is available that can remove the contaminant; and
 - All criteria for the use of air-purifying respirators are met.
- c. Recommended equipment:
 - Full facepiece or half facepiece (i.e., only if potential asbestos-containing materials are encountered) air-purifying negative pressure respirator;
 - Chemical-resistant clothing;
 - Inner and outer chemical-resistant gloves;
 - Chemical-resistant safety boots and shoes;
 - Disposable boot covers;
 - Hard hat; and
 - Two-way radio communications.
- d. Optional equipment:
 - Coveralls;
 - Face shield;
 - Escape bottle; and
 - Long cotton underwear.
- e. Limiting criteria:
 - Atmospheric concentration of chemicals must not exceed IDLH levels; and
 - The atmosphere must contain at least 19.5% oxygen.

7.1.4 Level D

- a. Protection provided:
 - No respirator protection and minimal skin protection.
- b. Should be used when:
 - The atmosphere contains no known hazard; and
 - Work functions preclude splashes, immersion, or the potential for unexpected inhalation of or contact with hazardous levels of any chemicals.

- c. Recommended equipment:
 - Coveralls;
 - Safety boots/shoes;
 - Safety glasses or chemical splash goggles; and
 - Hardhat.
- d. Optional equipment:
 - Gloves;
 - Escape bottle; and
 - Face shield.
- e. Limiting criteria:
 - This level should not be worn in the exclusion zone; and
 - The atmosphere must contain at least 19.5% oxygen.

7.2 *Mandatory PPE*

The following safety gear, at a minimum, will be worn once an employee leaves the support zone:

- Hard hat
- Safety glasses with sides shields
- ANSI-approved Class II traffic vest
- Steel-toed, steel-shank boots

7.3 *Levels of Protection Assigned to Tasks*

7.3.1 *Boundary Survey & Phase I ESA Site Reconnaissance*

The boundary survey and Phase I ESA Site reconnaissance will not be disturbing any areas where drums were previously identified. The initial level of protection to be worn during the boundary survey and Phase I ESA reconnaissance will be a Modified Level D. Modified Level D PPE for this work includes:

- Steel-toed, steel shank boots
- Long pants

7.3.2 *Brush Removal*

The initial level of protection to be worn during the brush removal will be Modified Level D. Modified Level D PPE for this work includes:

- Hard hat
- Safety glasses with sides shields
- Steel-toed, steel shank boots

- ANSI-approved Class II traffic vest
- Hearing protection if working around heavy equipment

7.3.3 Geophysical Survey

The geophysical survey will not be disturbing any areas where drums were previously identified. The initial level of protection to be worn during the geophysical survey will be a Modified Level D. Modified Level D PPE for this work includes:

- Steel-toed, steel shank boots
- Long pants

7.3.4 Buried Drum Removal and Sampling & Test Pit Excavation

The initial level of protection to be worn during buried drum removal and sampling activities and potential test pit excavation is Modified Level C (with the field staff having air-purifying respirators available if needed) as the contents of the previously identified drums appeared to be solidified. Any other drums discovered during Site work will be treated as unknowns and provisions will be made to have higher levels of PPE available if needed. Modified Level C PPE for this work includes:

- Hard hat
- Safety glasses with sides shields
- Steel-toed, steel shank boots
- ANSI-approved Class II traffic vest
- Hearing protection if working around heavy equipment
- Poly-coated Tyvek® coveralls
- Nitrile gloves

Ambient air monitoring of the breathing zone will be conducted using a PID/FID, and a combination oxygen/combustible gas meter. Should any of the action levels be exceeded, the work will stop and the level of protection will be upgraded, including respiratory protection, depending on the measured concentration of contaminants.

7.3.5 Surface Soil Sampling

The initial level of protection to be worn during surface soil sampling will be Level D, including nitrile gloves. If deemed necessary and in order to decrease the potential for dermal contact with surface soils, Tyvek® coveralls can be worn during surface soil sampling activities.

7.4 Respiratory Protection

The primary COCs during drum removal and drum sampling activities will be metals and VOCs. Exposure is expected to be highest if drums containing liquid wastes are encountered. Respiratory protection will most likely be needed during liquid waste drum removal, opening and sampling activities, as specified in Section 7.3. Where air monitoring data can support it, the use of air purifying

respirators (APRs) may be appropriate. Respirator fit testing, selection, protection factors, use and maintenance will be adhered to per the HAZWOPER standard in 29 CFR 1910.120.

Secondary COCs which could be present during the Work Plan activities include SVOCs. If dust generation is an issue, inhalation of these COCs will be controlled through suppression with water. Respiratory protection from dust, if necessary, would likely involve the use of APRs.

8.0 SITE CONTROL/DECONTAMINATION

8.1 *Site Access/Egress*

The primary access/egress to the Site is via a gated entrance on the west side of the Site immediately off of Dixon Road. This entrance is the sole entry and exit point of the Site. Due to the limited amount of Site work during this scope of work, the Site will not utilize a construction trailer. A mobile office building, which is used by the on-Site yard waste operations, could be used for temporary shelter if needed.

SESCO will post signs at the entrance to the Site that warn of the hazards associated with Site operations and that access to the Site is limited to authorized personnel only. Additional signs directing visitors to the on-Site mobile office with contact telephone numbers of Site personnel will also be erected at the main entrance to the Site. All visitors must sign in and out at the office. Any unauthorized visitors will be reported to the field person representing SESCO. During non-operational hours, the access gate will be secured with a chain and lock.

8.2 *Designation of Zones*

To prevent both exposure of unprotected personnel and migration of contamination due to tracking by personnel or equipment, hazardous work areas will be clearly identified. Due to the limited amount of time on-Site and the nature of the work during this scope, decontamination of personnel and equipment is expected to be minimal.

Work areas or zones will be designated as suggested in the "Occupational Safety and Health Guidance Manual for Hazardous Waste Site Activities," NIOSH/OSHA/USCG/EPA, November 1985. As recommended, areas surrounding each of the work areas will be divided into three (3) zones:

- Exclusion or "Hot" Zone;
- Contamination Reduction Zone (CRZ); and
- Support Zone.

The work zones will be established on-Site once the brush is removed and the Site encumbrances are better understood.

8.2.1 Exclusion Zone

The exclusion zone for this program will likely include the area on the far east side of the Site, where the drums were previously discovered. Signs will be installed west of the exclusion zone to alert personnel of PPE and training requirements. All personnel entering an exclusion zone must wear the prescribed level of PPE and meet the training and medical requirements as outlined in **Section 9.0** of this HASP.

8.2.2 Contamination Reduction Zone

A formal decontamination zone will be established adjacent to the drum/waste storage and sampling pad, if needed once the on-Site drum removal activities commence. The drum staging area will utilize

an existing concrete pad, which is depicted on **Figure 2**. This area will include a personnel decontamination area and an equipment decontamination area. The details of both decontamination areas are discussed in **Section 8.4** of this HASP.

8.2.3 Support Zone

The support zone consists of the command post area, sanitation facilities, parking area, and a materials staging area, located near the on-Site mobile office. The only access to the Site will be the locked gate along Dixon Road. All employees, agency representatives and visitors to the Site will use this gate to gain access to the Site. Immediately upon entering the Site, employees, agency representatives and visitors to the Site, as well as all delivery personnel, will report to the on-Site mobile office.

Everyone will be required to sign the log-in book located in the trailer and participate in a Site safety briefing with the SSO before leaving the support zone and entering any active work area. Based on the amount of activity that is taking place at the Site, all employees, agency representatives and visitors to the Site who want to access work areas must at a minimum don the following safety gear once they have left the support zone of the Site:

- Hard hat;
- Safety glasses with sashes;
- ANSI-approved Class II traffic vest or equivalent; and
- Steel-toed boots.

Sanitation facilities will be located within the support zone. Potable water will be available within the on-Site mobile office via bottles of water. Waterless hand cleaner, hand sanitizer and paper towels will also be available in the office. A portable toilet will also be located in this area.

8.3 General Site Safety Practices

The following measures are designed to augment the specific health and safety guidelines provided in this HASP.

- All work will be conducted under the buddy system.
- Eating, drinking, chewing gum or tobacco, smoking, or any practice that increases the probability of hand-to-mouth transfer and ingestion of materials is prohibited in the immediate work area and the decontamination zone.
- Smoking is prohibited in all work areas and within the office. Matches and lighters are not allowed.
- Hands and face must be thoroughly washed upon leaving the work area and before eating, drinking or any other activities.
- Beards or other facial hair that interfere with respirator fit are prohibited.
- The use of alcohol or illicit drugs is prohibited during the conduct of field operations.
- All equipment must be decontaminated or properly discarded before leaving the Site in accordance with the Work Plan.

8.3.1 Site Communications

Due to the relatively small size of the Site and the small area where drums are located, the primary means of communications will be cellular telephones to facilitate contact with local emergency providers and SESCO and/or Site contractors.

8.4 Decontamination

8.4.1 Personal Decontamination

During all field operations, personnel will pass through the CRZ while entering or exiting the exclusion zone. The CRZ may include the following components:

- Trash containers for disposal of PPE. Since all Tyvek® suits will be disposable, there will not be any decontamination required of these items.
- If protective booties are worn, the decontamination of these items will include the following decontamination tubs:
 - A pre-rinse tub containing water;
 - A cleaning tub containing water and cleaning detergent; and,
 - A post cleaning rinse tub containing water.
- Long-handled scrub brushes
- A table for safety equipment and accessories

The CRZ will be cordoned off with orange, temporary security fence and underlain with plastic sheeting.

Decontamination procedures will include:

- Remove overboots prior to entering CRZ, discard disposable booties, or wash/rinse outer boots;
- Remove and discard outer PPE, such as Tyvek® coveralls;
- Remove and discard outer glove;
- Remove respirator, if worn, and dispose of cartridges, as applicable;
- Wash/rinse respirator and hang to air dry;
- Remove hard hat; and
- Remove and dispose of inner gloves.

All disposable PPE will be containerized and disposed of off-Site.

8.4.2 Large Equipment Decontamination

Due to the nature of the initial scope of work, which includes the removal of two (2) drums, it is not anticipated that large equipment will require decontamination. If additional work is performed on-Site where equipment would potentially be exposed to a grossly contaminated area, provisions will be made to construct a large equipment decontamination pad.

8.4.3 Sampling Equipment Decontamination

On-Site decontamination of sampling equipment will be conducted at the designated sampling equipment decontamination area. If sampling equipment is exposed to gross contamination, an 5-step decontamination procedure will be followed and includes:

- Gross contamination will be removed utilizing a brush and an Alconox®/Water solution
- Rinse with distilled water
- Rinse with isopropyl alcohol
- Rinse with deionized water
- Wrap equipment in foil if not being used immediately

If sampling equipment is not exposed to gross contamination, a modified 2-step decontamination procedure will be employed for all non-aqueous sampling equipment and includes the following:

- Gross contamination will be removed utilizing a brush and an Alconox®/Water solution
- Rinse with distilled water

9.0 MEDICAL MONITORING AND TRAINING REQUIREMENTS

9.1 Medical Monitoring

All personnel performing activities covered by this HASP must be active participants in a medical monitoring program that complies with 29 CFR 1910.120 (f). Each individual must have completed an annual surveillance examination and/or an initial baseline examination within the last year prior to performing any work on the Site covered by this HASP. No Site-specific monitoring is required for the proposed Work Plan activities.

9.2 Health and Safety Training

9.2.1 HAZWOPER

All personnel performing activities covered by this HASP must have completed the appropriate training requirements specified in 29 CFR 1910.120 (e). Each individual must have completed an annual 8-hour refresher training course and/or initial 40-hour training course within the last year prior to performing any work on the sites covered by this HASP. One of the SESCO employees assigned to a supervisory role during the proposed investigations will be required to have successfully participated in the 8-hour supervisor training course. All employees directly involved with the Work Plan activities will be required to provide the SSO with a copy of their HAZWOPER training certificate.

9.2.2 Pre-Entry Briefing

Prior to the commencement of on-Site activities, a pre-entry briefing will be conducted by the SSO to review the specific requirements of this HASP. Attendance of the pre-entry meeting is mandatory for all personnel covered by this HASP and must be documented on the attendance form provided in **Appendix C**. HASP sign-off sheets should also be collected at the time of the pre-entry briefing. All documentation should be maintained in the project file. Specific topics that will be discussed during the pre-entry briefing include:

- Discussion of Site history;
- Discussion of work scope;
- Review of the potential hazards associated with the Site COCs and how these potential hazards will be controlled;
- Review of air monitoring requirements and action limits;
- Review of PPE and engineering control requirements;
- Discussion of the potential physical hazards associated with implementing scope of work;
- Review of emergency egress and hospital location/direction;
- Spill response procedures; and
- Review of decontamination procedures.

The pre-entry briefing must be completed for each new employee before they begin work at the Site. SESCO subcontractors must notify the SSO, at least one (1) day in advance, of any new employees that are being rotated into the project. This will ensure that the SSO is available to review the new

employee's training paperwork and to conduct the required pre-entry safety briefing before the new employee gains access to the work areas.

Short safety refresher "tailgate" meetings will be conducted, as needed, throughout the duration of the project. These safety meetings will likely be conducted in conjunction with the daily work schedule/progress meetings conducted by SESCO.

9.2.4 Visitor Requirements

All visitors will sign in at the on-Site mobile office. Visitors who do not have the requisite training and/or medical clearance information will be allowed into the work areas; however, these visitors will be escorted by a SESCO on-Site representative at all times and will at no time be permitted to enter a work area where respiratory protection is deemed necessary.

All employees, agency representatives, and visitors to the Site who want to access work areas must minimally don the following safety gear once they have left the support zone of the Site:

- Hard hat
- Safety glasses with sideshields
- ANSI-approved Class II traffic vest or equivalent
- Steel-toed boots

10.0 EMERGENCY CONTINGENCY PLAN

OSHA defines emergency response as any "response effort by employees from outside the immediate release area or by other designated responders (e.g., mutual-aid groups, local fire departments, etc.) to an occurrence which results, or is likely to result in an uncontrolled release of a hazardous substance." SESCO personnel will not participate in any emergency response where there are potential safety or health hazards (i.e., fire, explosion, or chemical exposure). SESCO response actions will be limited to evacuation and medical/first aid as described within this section below. As such, this section is written to comply with the requirements of 29 CFR 1910.38 (a). The basic elements of an emergency evacuation plan include:

- Employee training;
- Alarm systems;
- Escape routes;
- Escape procedures;
- Critical operations or equipment;
- Rescue and medical duty assignments;
- Designation of responsible parties;
- Emergency reporting procedures; and,
- Methods to account for all employees after evacuation.

10.1 Employee Training

Employees must be instructed in the site-specific aspects of emergency evacuation. On-site refresher or update training is required anytime escape routes or procedures are modified or personnel assignments are changed.

10.2 Alarm Systems/Emergency Signals

An emergency communication system must be in effect at the Site. The most simple and effective emergency communication system in many situations will be direct verbal communications, followed by cellular telephone communications. In the event of an emergency, air horns will be on-Site and can be sounded if an emergency condition is present. The Site must be assessed with respect to emergency communication issues at the time of initial Site activity and periodically as the work progresses. Verbal communications must be supplemented anytime voices cannot be clearly perceived above ambient noise levels (e.g., noise from heavy equipment, backhoes, etc.) and anytime a clear line-of-sight cannot be easily maintained amongst all the on-Site personnel because of distance, terrain, vegetation or other obstructions.

Verbal communications will be adequate to warn employees of hazards associated with the immediate work area. The yard waste operations on-Site are conducted daily from April through November. Therefore, SESCO employees and subcontractors will each have cellular phones available to ensure that communications with local emergency responders is maintained, when necessary.

10.3 *Escape Routes and Procedures*

The escape route from the property will be toward the entrance on the west side of the Site along Dixon Road. The escape route and assembly areas will be reviewed during the pre-entry briefing. All on-Site personnel are responsible for knowing the escape route from the work area and where to assemble after evacuation.

The entrance to the Site will also serve as the Rally Point, where Site workers will gather each day to review the HASP and the scheduled work.

10.4 *Rescue and Medical Duty Assignments*

The phone numbers of the police and fire departments, ambulance service, poison control center, Indiana Department of Environmental Management, U.S. EPA, local hospital, Respondent, and SESCO representatives are provided in the emergency reference sheet (**Table 1**). This sheet will be posted in the Site office located in the support zone of the Site.

In the event an injury or illness requires more than first aid treatment, the SSO will accompany the injured person to the medical facility and will remain with the person until release or admittance is determined. The SSO will relay all appropriate medical information to the PM and COO. A map to the nearest hospital is included with **Table 1** and directions are provided below.

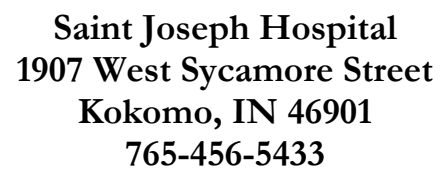
**Saint Joseph Hospital
1907 W. Sycamore Street
Kokomo, IN 46901
(765) 456-5433**

- From the entrance at the Site, go north on Dixon Road for approximately 0.9 mile to Sycamore Street
- Turn right onto Sycamore Street and travel approximately 0.4 mile to the entrance to the hospital on the right.

If the injured employee can be moved from the accident area, he or she will be brought to the CRZ, where his/her PPE will be removed. If the person is suffering from a back or neck injury the person will not be moved and the requirements for decontamination do not apply. The SSO must familiarize the responding emergency personnel about the nature of the Site and the injury. If the responder feels that the PPE can be cut away from the injured person's body, this will be done on-Site. If this is not feasible, decontamination will be performed after the injured person has been stabilized.

10.5 *Designation of Responsible Parties*

The SSO is generally responsible for initiating emergency response; however, all Site workers have the authority to stop work in the event of an emergency condition. In the event the SSO cannot fulfill this duty, a designated alternate SSO will take charge.



Saint Joseph Hospital
1907 West Sycamore Street
Kokomo, IN 46901
765-456-5433

10.6 Employee Accounting Method

The SSO is responsible for accounting for all of the on-Site personnel at all times. All SESCO personnel, their subcontractors, and Respondents' contractors will sign in and sign out of the Site on a daily basis in a log book located within the office. On small, short duration tasks, this can be done informally as long as an accurate accounting is possible. The SSO must be informed when subcontractor personnel enter or leave the Site.

10.7 Accident Reporting and Investigation

Any incident (other than minor first aid treatment) resulting in injury, illness, or property damage requires an accident investigation and report. The investigation should be conducted as soon as emergency conditions are under control. The purpose of the investigation is not to attribute blame but to determine the pertinent facts so that repeat or similar occurrences can be avoided. An accident investigation form is presented in **Appendix D** of this HASP. The injured SESCO employee's supervisor should be notified immediately of the injury.

If a subcontractor is injured, he/she should report to their supervisor immediately, who in turn must report the injury to the SSO.

10.8 Spill Response

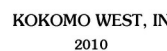
In the event of a spill or discharge of a hazardous material or oil, immediate steps must be taken to minimize the migration of the material on the lands or into the water, unless there is an imminent threat to health. The information below addresses the most significant activities that could result in a spill of hazardous material at the Site.

10.8.1 Release of Material from Drums/Containers/Pails

The drum and waste storage and sampling pad will utilize a layer of plastic sheeting to avoid a release to the ground surface in the immediate vicinity. If liquid drums are encountered, the drum staging area will be reconfigured, including the construction of a gravel berm around the perimeter. If drum contents are spilled, sorbent materials and pads will be applied to the spill. If necessary, a vacuum tanker will be used to remove any ponded or pooled products. Impacted cleanup materials, as well as impacted soils and water, will be managed for off-Site disposal similar to the program established for drum disposal.

LIST OF FIGURES

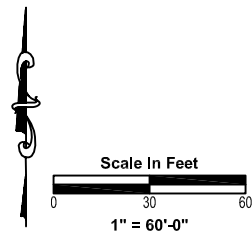
Figure 1	Site Location Map
Figure 2	Site Map
Figure 3	USFWS National Wetlands Inventory Map



O:\Consulting\@SESCO Technical Docs\#4108 Kokomo Dump Site\HASP\Figures\SITE MAP.dwg, 8/30/2013 1:34:47 PM



Environmental Investigation & Remediation



LEGEND

- APPROXIMATE PROPERTY BOUNDARY
- +++++ RAILROAD
- RIGHT OF WAY
- KD-SB4 ● OTIE SAMPLE LOCATIONS

SITE MAP

KOKOMO DUMP
1130 S. DIXON ROAD
KOKOMO, INDIANA

PROJECT # 4108

FIGURE # 2

FIGURE 3

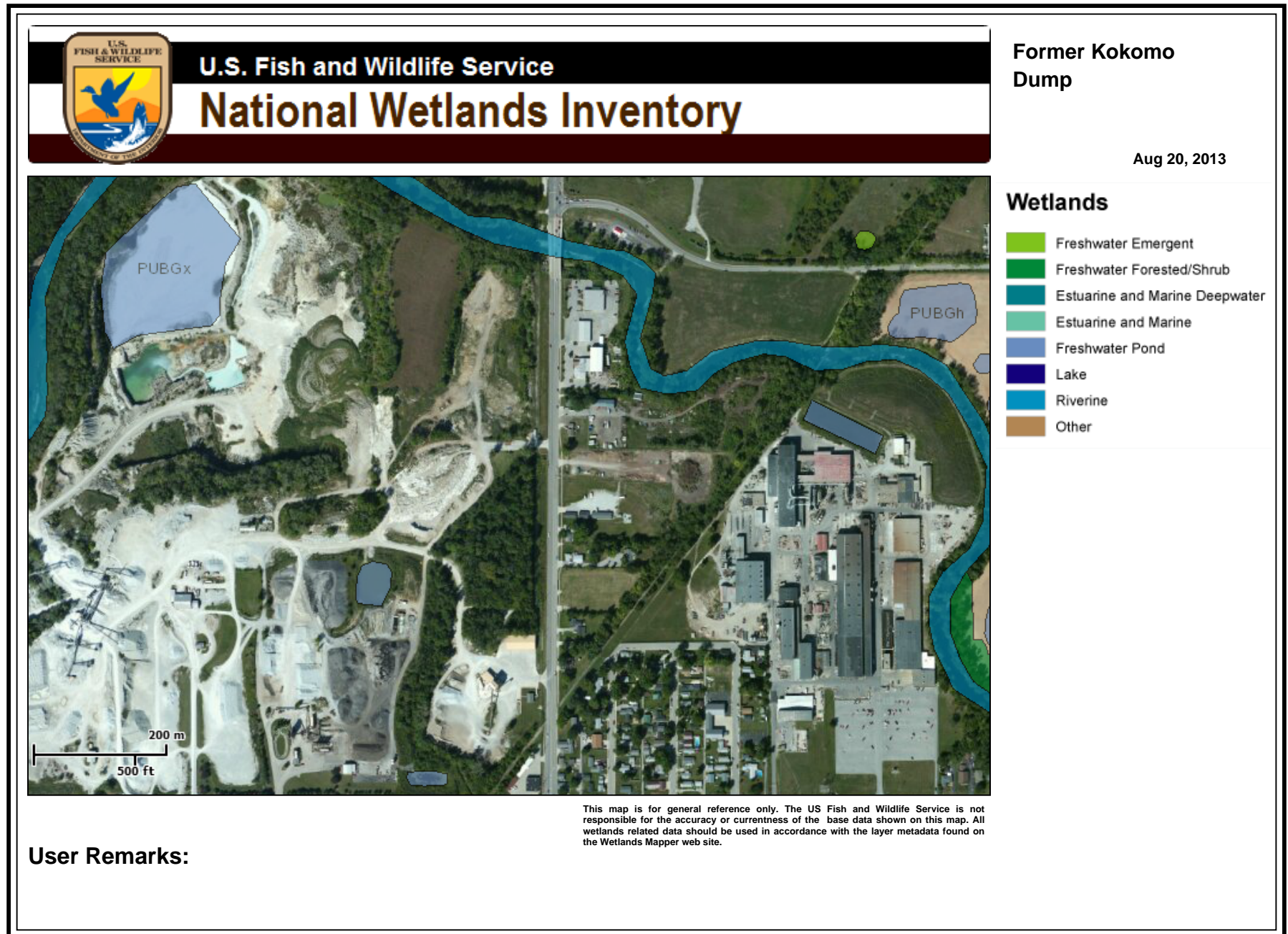


TABLE 1

Emergency Contact Information

Kokomo Dump Site
1130 South Dixon Road
Kokomo, IN 46901
U.S. EPA Site Spill Identification #C564

[illegible]

LIST OF APPENDICES

Appendix A	Employee Acknowledgement of Site-Specific Health & Safety Plan
Appendix B	Site Health & Safety Plan Amendment Form
Appendix C	Pre-Entry Health & Safety Briefing Attendance Form
Appendix D	Accident Reporting Form

APPENDIX A

Employee Acknowledgement of Site-Specific Health & Safety Plan

APPENDIX A

EMPLOYEE ACKNOWLEDGEMENT OF SITE SPECIFIC HEALTH & SAFETY PLAN

SESCO management is committed to the safety of our employees. It is the responsibility of management and supervision to see that every employee is provided with safety instructions for this job, information, the location, and opportunity to review the Site Health and Safety Plan. It is also the responsibility of management to provide a safe work environment and observe all safety regulations. No management policy can be effective, however, if each employee does not also have a commitment to the safety policies of the company. To ensure the safety and health of company employees, the company has developed, and shall implement, the following disciplinary policies.

Any infraction of SESCO safety policies and/or Federal, State, or local regulations by a SESCO employee will result in disciplinary actions.

- A first infraction will result in a verbal warning and the infraction will be documented and become part of the employee's work record. If, during an investigation, it is determined that the employee's first infraction causes or could cause serious harm to himself and/or another employee, the result may be other disciplinary actions, including dismissal.
- A second infraction may result in suspension from work. The duration of the suspension will be determined on a case-by-case basis and will be commensurate with the seriousness of the infraction, and may result in dismissal. The infraction will be documented and become part of the employee's work record.
- A third infraction may result in dismissal. This will be documented and become part of the employee's work record, and the employee's name shall be placed on a not-for-rehire list maintained by the company. All information and documentation will be retained by the company and will not be available to other employers.

SESCO safety policies and regulations were developed to protect each employee, however, it is every employee's responsibility to observe and follow the company's safety policies.

I have been notified of, received, and understand SESCO safety policies and acknowledge the disciplinary actions that may be taken as a result of non-compliance with such policies.

Date: _____

Employee Name: _____

Employee Signature: _____

SESCO Supervisor: _____

APPENDIX B

Site Health & Safety Plan Amendment Form

APPENDIX B

SITE HEALTH & SAFETY PLAN AMENDMENT FORM SITE-SPECIFIC HASP AMENDMENT FORM

Amendment #: _____

Site Name: _____

Work Assignment #: _____

Date: _____

Type of Amendment: _____

Reason for Amendment: _____

Alternate Safeguard Procedures: _____

Required Changes in PPE: _____

Chief Operating Officer (COO): _____

Date: _____

APPENDIX C

Pre-Entry Health & Safety Briefing Attendance Form

PRE-ENTRY HEALTH & SAFETY BRIEFING ATTENDANCE FORM

Kokomo Dump Site
1130 South Dixon Road
Kokomo, IN 46901

Briefing Conducted By: _____

Date Performed: _____

[illegible]

APPENDIX D

Accident Reporting Form

ACCIDENT REPORTING FORM

Kokomo Dump Site
1130 South Dixon Road
Kokomo, IN 46901
U.S. EPA Site Spill Identification #C564

Supervisor's Name:_____

Date & Time		Location	
Tasks Performed		Witnesses	
Resulted In (injury, fatality, property damage)		Property Damage	
Injured		Fatality	

Describe Accident Facts & Events